San Francisco International Airport Benchmarks

- The current capacity benchmark at San Francisco is 95-99 flights per hour in good weather. The runway geometry at San Francisco makes fleet mix a key determinant of capacity.
- Current capacity falls to 67-72 flights (or fewer) per hour in adverse weather conditions, which may include poor visibility, unfavorable winds or heavy precipitation.
- San Francisco ranks fourth in the number of flights delayed in excess of 15 minutes in calendar year 2000 (over 5% of the flights). During the same period, it ranked second, behind LaGuardia, in total arrival delay.
- Technology and procedural improvements are not expected to improve San Francisco's capacity benchmark for good weather over the next 10 years.
- These improvements are expected to increase the adverse weather capacity benchmark by 3% (to 69-74 flights per hour).
- These capacity increases could be brought about as a result of:
  - ADS-B/CDTI (with LAAS), which provides a cockpit display of the location of other aircraft and will help the pilot maintain the desired separation more precisely.
  - FMS/RNAV Routes, which allow a more consistent flow of aircraft to the runway.
  - SOIA (with PRM) may provide additional capacity during certain weather conditions. These benefits are not reflected in the benchmark value, however, which is based on weather condition below the minima for SOIA operations.
- The airport operator was considering runway reconfiguration at the time the study was prepared. However, no locally preferred alternative had been selected so no attempt was made to estimate the benefit of such an improvement.
- Demand is expected to grow by 18% over the same period.
- San Francisco frequently experiences adverse weather conditions that significantly reduce capacity below demand. San Francisco is one of the most delayed airports in America and demand will grow faster than capacity over the next ten years. This will cause greater delays, especially in adverse weather.

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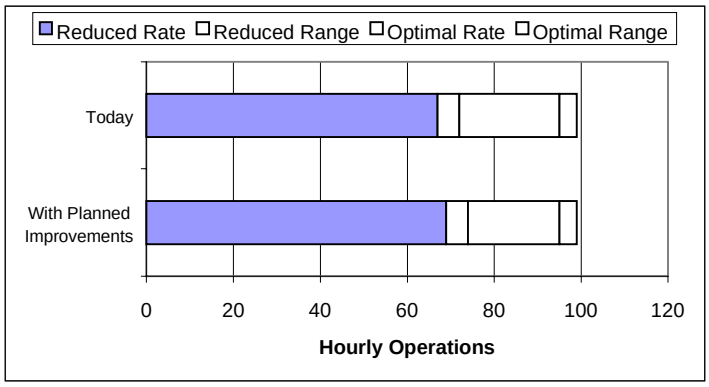
Airport Capacity Benchmarks – These values are for total operations achievable under specific conditions:

- **Optimum Rate** – Visual Approaches (VAPS), unlimited ceiling and visibility
- **Reduced Rate** – Most commonly used instrument configuration, below visual approach minima

Scenario	Optimum Rate	Reduced Rate
Today	**95-99**	**67-72**
New Runway	**N/A**	**N/A**
With planned improvements	**95-99**	**69-74**



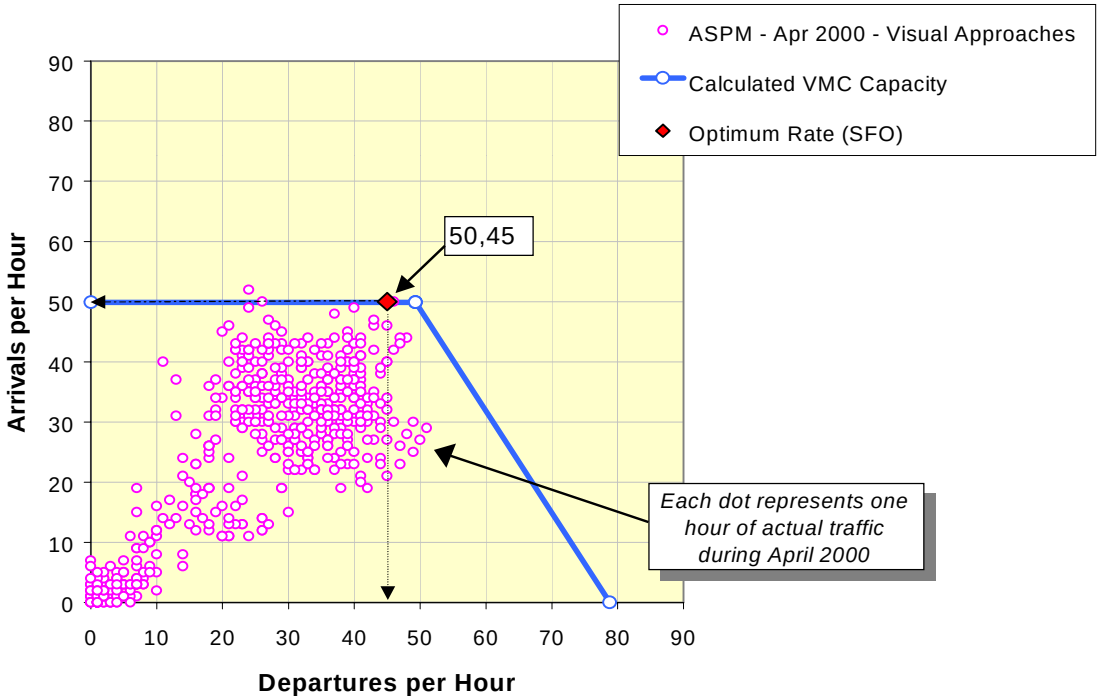
- The benchmarks describe an achievable level of performance for the given conditions, which can occasionally be exceeded. Lower rates can be expected under adverse conditions. Note: In some cases, facilities provided separate unbalanced maximum arrival and departure rates.
- Planned Improvements include:
  - ADS-B/CDTI (with LAAS) – provides a cockpit display of the location of other aircraft. This will help the pilot maintain the desired separation more precisely.
  - FMS/RNAV Routes – allows more consistent delivery of aircraft to the runway threshold.
  - SOIA (with PRM) may provide additional capacity during certain weather conditions. These benefits are not reflected in the benchmark value, however, which is based on weather condition below the minima for SOIA operations
- Benefits from Planned Improvements assume that all required infrastructure and regulatory approvals will be in place. This includes aircraft equipage, airspace design, environmental reviews, frequencies, training, etc. as needed.
- **Note:** These benchmarks do not consider any limitation on airport traffic flow that may be caused by non-runway constraints at the airport or elsewhere in the NAS. Such constraints may include:
  - Taxiway and gate congestion, runway crossings, slot controls, construction activity
  - Terminal airspace, especially limited departure headings
  - Traffic flow restrictions caused by en route miles-in-trail restrictions, weather or congestion problems at other airports

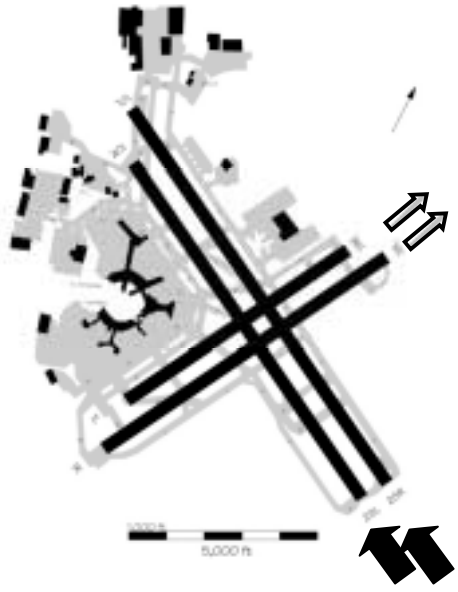
These values were calculated for the Capacity Benchmarking task and should not be used for other purposes, particularly if more detailed analyses have been performed for the individual programs.

The list of Planned Improvements and their expected effects on capacity does not imply FAA commitment to or approval of any item on the list.

Current Operations – Optimum Rate

- Visual approaches, visual separation
  - Optimum Rate of (50, 45) was reported by the facility
  - Arrive Runways 28L/R, Depart Runways 01L/R
- ASPM data is actual hourly traffic counts for the month of April 2000 for Visual Approach conditions. This data includes other runway configurations and off-peak periods.
- Solid line represents the calculated airport capacity during a busy hour, and the tradeoff between arrivals and departure rates





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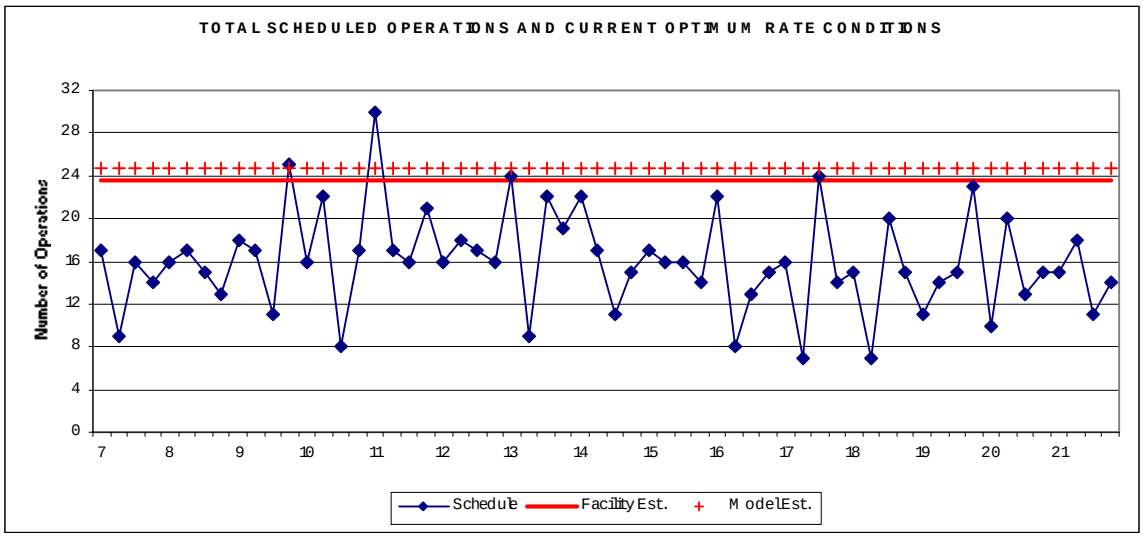
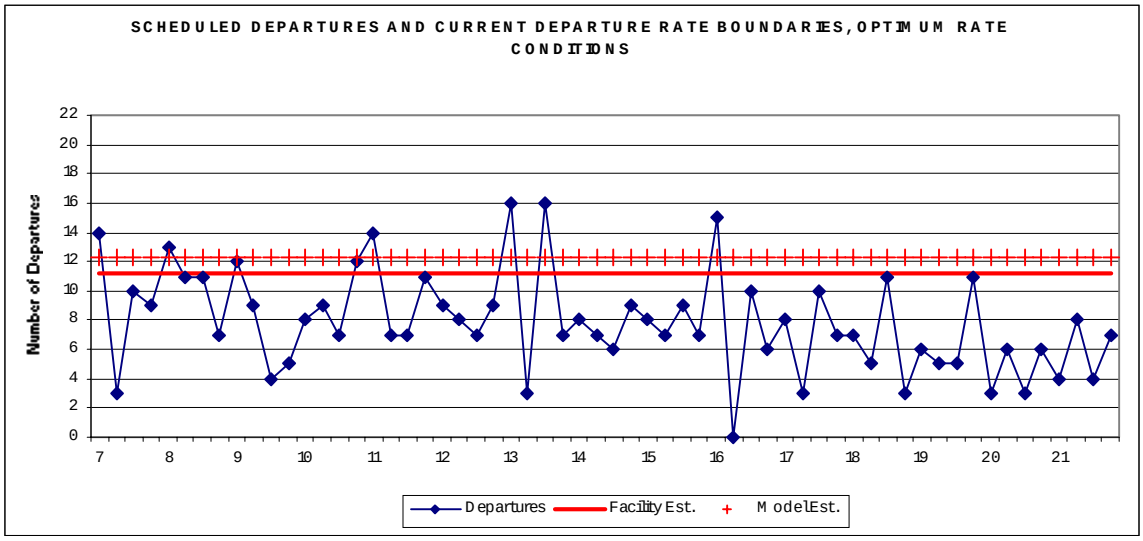
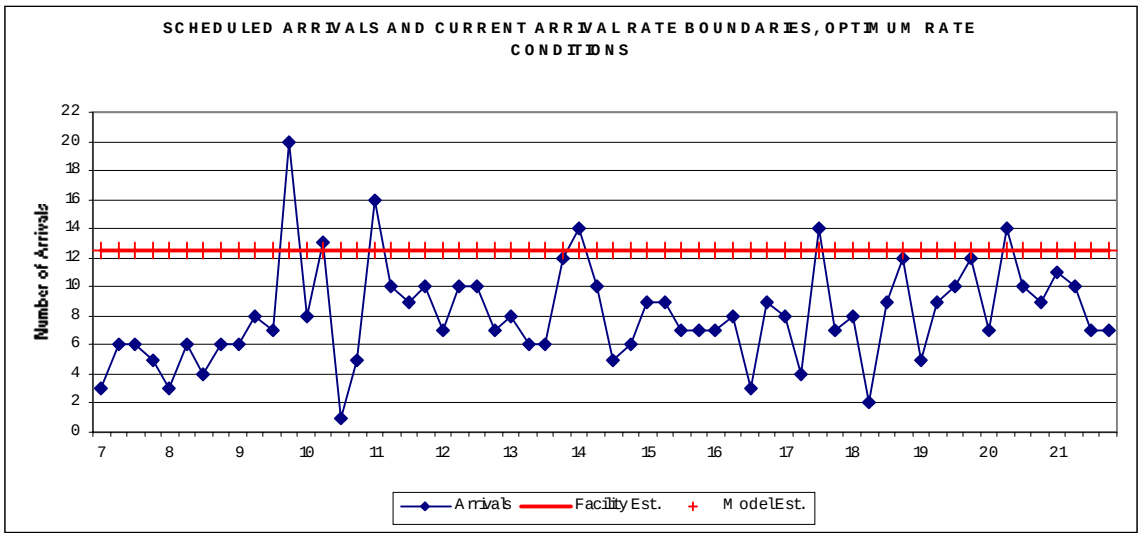
Scheduled Departures and Arrivals and Current Departure and Arrival Rate Boundaries (15-Minute Periods) Under Optimum Rate Conditions

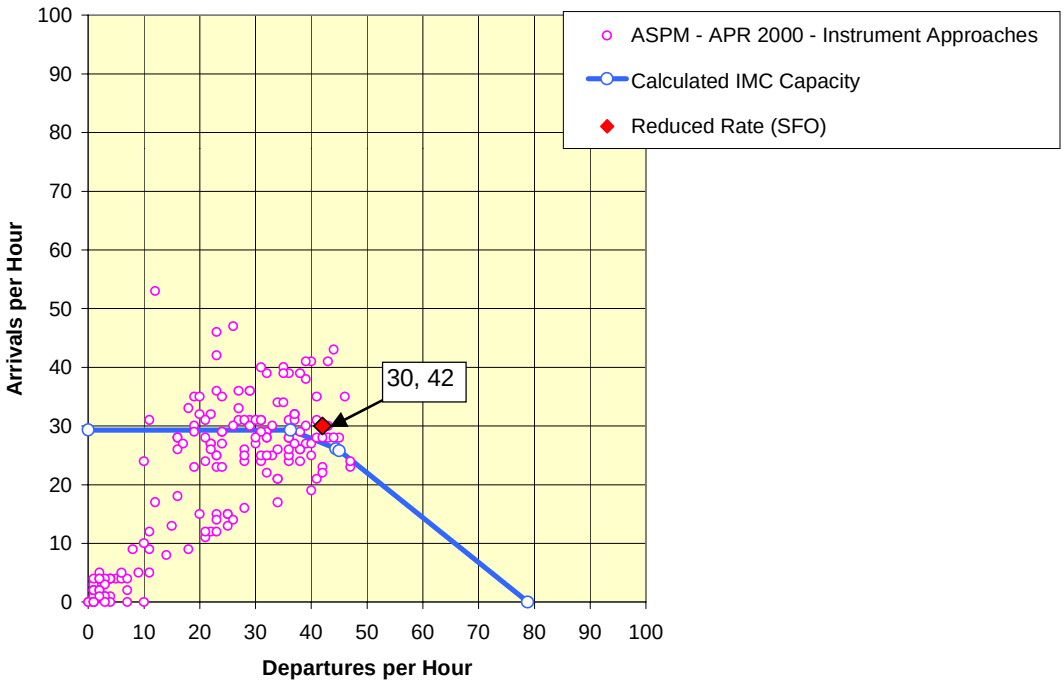


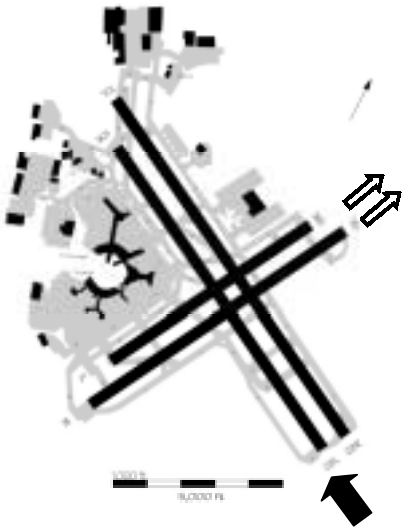




Current Operations – Reduced Rate

- Instrument approaches (below Visual Approach Minima)
  - Arrive Runway 28L/R, Depart 01L/R
- Reduced Rate of (30,42) was reported by the facility
- ASPM data for “Instrument Approaches” can include marginal VFR, with higher acceptance rates
- Chart below represents observed traffic and expected rates in terms of operations per hour





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Scheduled Departures and Arrivals and Current Departures and Arrival Rate Boundaries (15-Minute Periods) Under Reduced Rate Conditions